

# No. 50 | October 2025



The New Big Thing in the field!
The Catros 12003-2TX
compact disc harrow

Intensive shredding and mixing in preparation for mulch sowing

50th issue

## A word of welcome from the management of AMAZONEN-Werke

A gritechnica 2025, the world's largest exhibition for agricultural machinery took place recently and we would like to extend our heartful thanks to you. For us, this show was not only an international industry get-together, but also a showcase of what we have achieved together.

The dazzling display of more than 30 innovations presented there was the result of the daily commitment, ideas and passion of all those involved. Close communication with our customers and partners plays a key role in ensuring that AMAZONE remains an innovative and forward-looking company in the field of agricultural machinery. We extend our thanks to all of you.

We are especially proud of the awards we received at Agritechnica: Two silver medals for our innovations EasyMatch and ZA-TS 01 AutoSpread underline the innovative strength and the high practical benefit of our developments.

Further awards also demonstrate that our joint efforts are bearing fruit: For 2024, we were named Germany's most inno-

vative medium-sized company by WirtschaftsWoche magazine. This was followed by the stern Innovation Award for Agricultural Machinery in 2025. And in the DLG Image Barometer, we were not only able to maintain our strong 4th place but also further improve our positive rating – contrary to the general trend.

These successes are a strong indication of what defines us: Team spirit, customer focus and enthusiasm for innovation.

The current positive signals from the agricultural machinery sector are providing momentum — even though the political and economic conditions remain uncertain. This makes AMAZONE all the more committed to growing together with new ideas and a clear vision for the future.

Thank you to everyone who visited us at Agritechnica! The AMAZONE management team



**International Press Days 2025** 

#### Hands-on innovations from AMAZONE and KRONE

rom September 2nd-4th 2025, AMAZONE and KRONE welcomed 85 trade journalists from 26 countries to the International Press Days. The event provided exclusive insights into the latest innovations before AGRITECHNICA in November.

The launch took place at the brand new AMAZONE Academy in Hude-Altmoorhausen, which was officially opened in mid-August. You can find more about this on page 6. The welcome was followed by a machinery show, a tour of the factory and an evening together in Oldenburg.

On the second day, the focus was on machine demonstrations on the test areas. KRONE then welcomed the guests to its training centre in Spelle and presented further innovations.

The International Press Days provided an ideal platform for imparting technical information, machinery hands-on and one-to-one discussions.



An international stage for innovations

### **AMACreator Days 2025**

On September 15th & 16th, the fields in Hude were once again transformed into a content hub: 15 agri-influencers from five countries came together to showcase our new products for 2026 to a global audience. The focus was on the practical presentation of our implements – including test drives and direct dialogue with our product experts.

A varied evening programme with group activities and a barbecue encouraged creative exchange and rounded off the programme for the day. The digital response was impressive: Explanatory videos on YouTube, reels on Instagram and high reach on TikTok demonstrate how strongly our brand is perceived internationally.

The feedback from participants was highly positive throughout – a complete success for our innovative strength and brand presence. Thanks to everyone involved!



New products at Agritechnica

# Six of many top innovations for 2025. Two silver medals for pioneering technology!



## A new era of precision: the AMAZONE ZA-TS 01 self-adjusting fertiliser spreader with AutoSpread

AutoSpread uses the direction of throw and the throwing distance of the fertiliser to measure the actual spread pattern during operation and then automatically adjusts the spreader. The combination of sensor systems and an online connection to the Spreader Application Centre enables real-time validation via a digital twin in the cloud-based AmaConnect data platform. Functions such as CurveControl, BorderTS and HeadlandControl are also integrated. The new software allows intuitive settings, for instance, when border spreading. AutoSpread detects faulty spreading vanes and ensures complete documentation of all applications.

## AMAZONE EasyMatch – innovative fertiliser identification using artificial intelligence

EasyMatch identifies fertiliser from a photo and immediately provides the correct spreader settings. The system uses AI to analyse over 250 physical properties of the fertiliser and compares them with the database. EasyMatch is fully integrated in the mySpreader App and can be used offline. EasyMatch saves time, prevents incorrect settings and increases fertiliser efficiency. In combination with EasyCheck, the lateral distribution can also be checked.

#### The new Catros+ 12003-2TX compact disc harrow for highly efficient soil tillage

The Catros<sup>+</sup> 12003-2TX has a working width of 12 m and is designed for shallow to medium-deep, fast and highly efficient soil tillage. The new running gear and folding concept with ContourFrame enables optimum terrain following. The implement can be equipped with various disc types (including the X-Cutter disc) and rollers (such as the DUW 580 pro). The Smart Frame System allows fully hydraulic depth adjustment on the move. Controlled Traffic Farming is supported by an optional 12.25 m disc element. ComfortClick makes it easier to switch between the transport and working positions.





#### AmaXact – pulse width frequency modulation: Application technology at a new level

AmaXact is a newly developed nozzle body with pulse width frequency modulation (PWFM) that regulates the application rate independently of the spray pressure. The valves open and close several times per second, enabling the precise individual control of each nozzle. This allows spot spraying, part area, site-specific application and continuous curve compensation. The DynamicFlow hydraulic pressure regulator ensures rapid pressure adjustment. AmaXact offers an intuitive operating concept with input of the droplet size and automatic adjustment of the pressure, frequency and opening time. Integration in the cloud-based AmaConnect data platform enables the use of smart functions such as application monitoring and automation.



### The ProfiMower – self-propelled mower with mulching function for professional lawn maintenance

The new ProfiMower is based on the Profihopper 1500 and is designed for mowing without collection. It offers efficient mulching and is equipped with either a BladeCut rotary mowing deck (cutting width 1.80 m) or the SmartCut fine flail cutting deck (cutting width 1.50 m). The Yanmar diesel engine with 45.5 hp, all-wheel drive and a 55 litre fuel tank enable all-day operation. The integrated load platform allows tools to be transported. The optional InsectGuard protects insects during mowing.

# All about our exhibition highlights **AMAZONE innovations:**





#### The new Condor 02 trailed seed drill – reliable even under the toughest conditions

The Condor 02, in working widths of 8 m and 9 m, combines manoeuvrability with high area coverage. The ConTeC pro tine coulter ensures even seed placement and is equipped with automatic coulter pressure control. The three-chamber pressurised hopper (4,100 litres) allows for the precise application of a combination of various applied materials. The MultiSwitch single-row control system reduces overlap on the headland to less than 1% and contributes to significant cost savings. VF low-pressure tyres and wheel mark eradicators are available as options for soil protection in the field.





Grand opening of the new AMAZONE Academy training centre. Group photo (from left): Klaus Dreyer, Magdalene Dreyer, Konstanze Gottwald, Dr Justus Dreyer, Christian Dreyer, Bettina Dreyer, Magnus Gottwald

AMAZONE expands the Academy

# New training centre in Altmoorhausen

On August 15th 2025, the new AMAZONEN-WERKE training centre was officially opened in Altmoorhausen. The modern building, with an area of 2,430 m², offers ideal conditions for practical training in plant protection and large-area machinery. Thanks to its direct access to farmland, field work can be intensively integrated. In addition to the presentation areas, the building includes a reception area, seminar rooms and a conference room. The AMAZONE Academy offers training courses for sales, service and end users throughout the year – supplemented by courses in Hude, Hasbergen-Gaste and at Deula in Warendorf.

The target groups are sales staff and service technicians of AMAZONE distribution partners, farmers and contractors, as well as internal employees. With 14 employees – including technical and sales trainers, content managers and content creators – the Academy strengthens service quality and competitiveness. The new Academy also serves as a venue for events such as the Agritechnica press conference.



## Lincolnshire Farmer Finds Flexibility in AMAZONE's Cobra

and relies on a range of AMAZONE machines including the ZA-M, UX Special, Cobra, and Cayena. His latest addition – the Cobra 6000-2TX – is used for both post-harvest stubble cultivation and spring work following sheep grazing.





Working at depths from 5 cm down to 15 cm, Ed appreciates the flexibility of running the Cobra without the rear packer, particularly in spring when leaving the soil open helps speed up drying. He notes, "The number of legs on the machine really does move every bit of soil," with a single pass of the Cobra typically providing all the cultivation needed before following up swiftly with the Cayena 6001-C tine drill.

AMAZONE's successful participation in the AGROTECH exhibition in Kielce, Poland

### AMAZONE is an absolute hit at the 30th anniversary show

The 30th holding of the AGROTECH exhibition took place from March 14th – 16th 2025 and which attracted around 80,000 visitors. With 530 exhibitors from 20 countries, it was a significant event for Polish farmers.

AMAZONE was represented by its subsidiary AMAZONE Polska with a large stand, where it presented its entire range of machinery, including many innovations. Many prospective customers were offered support and advice by employees and sales partners.

On the first day of the show, AMAZONE Polska held a press conference with representatives from 12 trade publications and a large number of distribution partners. Managing Director Marek Zieliński presented the latest company developments and plans for expanding the sales network in Poland. Since May 1st 2025, five additional agricultural machinery dealer networks have been distributing AMAZONE products.

Participation in the show was a great success for AMAZONE and underlines the importance of the Polish market.

Front row, from left: Marcin Kurzyński (representative for North-East), Michał Wojciechowski (Marketing), Marek Zieliński (Managing Director), Krzysztof Ornowski (Service Manager)

Back row, from left: Mikołaj Ginter (service technician), Andrzej Borowiec (representative for South-East), Krzysztof Olszewski (sales promotion)





report 50 7

#### Working together for training

The State Education Centre for the Hearing Impaired in Osnabrück successfully supports young people from all over Lower Saxony in starting their careers — including Shafi Yousafzai (right), who completed his training as a skilled metal worker at AMAZONE and was given a permanent position at the beginning of the year. The close cooperation between schools, businesses and support services shows how successful inclusion works in practice.

PS: The hand gestures in the picture represents the names. Shafi shows "Schade" and trainer Tim Schade (left) shows "Shafi".





#### Hands-on technology at the Deutsches Museum

Since 2019, the Cataya 3000 Super with a KX rotary cultivator has been on display in the Agriculture and Food exhibition at the Deutsches Museum in Munich, where it is admired by thousands of visitors every day. The versatile seed drill combination stands for modern precision sowing technology. It impressively demonstrates how innovative agricultural machinery contributes to sustainable food production — an intriguing contribution to food security and a highlight for technology enthusiasts.

## **NEXAT and AMAZONE: Working together for the agriculture of the future**

First unveiled a year ago, the NEXAT ZG-TS 20001 is now ready for series production. AMAZONE supplies the ZG-TS Truck mounted spreaders and provides technical support. With two 10,000-litre hoppers and the tried-and-tested TS spreading unit, the new fertiliser spreader sets new standards in precision and efficiency. Technologies such as AutoTS, ArgusTwin and WindControl ensure consistent application — even under difficult conditions. The parabolic, part-width section control guarantees maximum spreading quality. Initial deployments in Brazil and Romania demonstrate its impressive performance and accuracy. The geographical proximity of the companies promotes the exchange of ideas and cooperation in this highly innovative solution.



#### Pantera 7004: A milestone in innovation

The Pantera 7004 marks the impressive success of the fourth generation of the self-propelled sprayer. Equipped with a tank capacity of 6,600 litres and working widths of up to 48 metres, the Pantera sets new standards in efficiency and precision. The award-winning design (Red Dot Award 2023), the exceptionally comfortable running gear and the high-precision application technology in combination with the excellent ContourControl boom guidance system are all worthy of mention. Pantera sets the standard in its class with these key features. A reason for recognition — and a view to the further development.



## AMAZONE roundabout as a new landmark

Since the spring of 2025, an AMAZONE ZA-V mounted fertiliser spreader has been the centrepiece of the roundabout between Gaste and Hasbergen. The impressive exhibit symbolises the close connection to agriculture and indicates the proximity to the main AMAZONE factory in Hasbergen-Gaste. The modern fertiliser spreader stands for precision, efficiency and close regional ties — a technical monument with a view to the future.



## Successful workshop manager and spare parts warehouse conference 2025

After a two-year break, the conference offered an intensive exchange of information on current service topics and new structures in spare parts management at three locations in Germany. The approximately 90 workshop managers and spare parts managers from our premium distribution partners showed great interest in the innovations presented – a powerful boost for future cooperation with our premium distribution partners.



#### Social engagement of our trainees

From November 4th – 15th 2024, our trainees completed a social internship at Heilpädagogische Hilfe Osnabrück – a valuable experience that provided insights into social work. The exchange strengthened social skills and demonstrated how industry and social engagement can work together successfully. AMAZONE has been placing production orders with HHO for some time now, so it was all the more exciting for the employees to discover the parts they had manufactured installed on the machines during the factory tour. The return visit on February 24th 2025 rounded off the project – and was repeated on April 29th after receiving positive feedback.



report 50

Sabine Spellmeyer retires after almost 50 years

## An era comes to an end



At the end of August 2025, we said goodbye to Sabine Spellmeyer, our long-standing colleague from our main factory in Hasbergen-Gaste, as she entered her well-deserved retirement.

Sabine Spellmeyer began her commercial training at AMAZONE in 1976. After completing her training, she moved to the invoicing department in the former sales division under Friedhelm Brömstrup, where she dealt with orders and invoices, amongst other things, for many years. Sabine Spellmeyer remained loyal to the sales department and was a permanent and valued member of staff there for decades, with a brief 1.5-year break to have a baby.

In 2007, she took on the role of Assistant to the Sales Manager for Germany, which she fulfilled until August 2025 with great dedication, organisational skills and a keen instinct for people. Her colleagues valued her not only for her expertise but also for her helpful and friendly manner.

Sabine Spellmeyer is now looking forward to this new chapter in her life and to spending lots of time with her family, especially her grandson.

The management would like to express its sincere thanks for her many years of loyalty, her dedication and a working relationship which was always based on mutual trust. We wish her all the best for her retirement, good health and many happy days with her family.

In the job for almost four years

# Maximilian Homann is the representative for North-East Lower Saxony



Expertise and practical experience for strong local customer service. Since December 2021, Maximilian Homann has been successfully serving the north-east Lower Saxony region as a representative for AMAZONEN-WERKE.

During this time, he has established himself as an extremely competent contact person for sales partners and customers. The qualified agronomist brings comprehensive technical expertise from his previous position as product manager for sprayers at the main factory in Gaste.

Having grown up and worked on a family farm, Maximilian has extensive practical experience. He also spends his free time working with farmers using his own machinery, which allows him to remain close to everyday practice and current issues.

With his in-depth AMAZONE-specific know-how, his down-to-earth approach and the close customer contact, he makes an important contribution to sales support in the region.

Maximilian lives with his family in Hanstedt 1, south of Lüneburg. We thank him for his dedication and look forward to continuing the successful working relationship.

Executive employee: Douglas Peccin

## With a passion for machinery and agriculture

Douglas Peccin is the founder of MP AGRO and is now running the company as a managing director within the AMAZONE Group. The company's success story began with his idea to develop high-performance fertiliser spreaders for the Brazilian market. He designed, built and sold these himself.

What once began in a small workshop is now an established company with around 130 employees. With the sale of MP AGRO to the AMAZONE Group in 2024, Peccin opened up new avenues for sustainable growth and international cooperation.

As the managing director of MP AGRO in Brazil, he is now shaping the next stage of the company's development. Thanks to his close ties to Brazilian agriculture and his sensitivity for practical requirements, he is an important driving force behind the on-going development of products and solutions – now backed up by the technological expertise of the AMAZONE Group.





FILM Find out more Dr Justus Dreyer, Douglas Peccin and Christian Dreyer (from left to right)

Timo Walhorn

#### **Head of Assembly Hall 1, Bramsche Plant**

Timo Walhorn began his career in 1996 with an apprenticeship as an industrial mechanic at Preussag Anthrazit GmbH in Ibbenbüren. Due to the uncertain future of the mine, he began looking for new opportunities at an early stage. A tip from his cousin told him about vacancies at AMAZONEN-WERKE in Hasbergen-Gaste. After a brief interview with the then operations manager, Mr Wiendieck – still in his miner's overalls – he was immediately offered the job and started work in April 2000.

Mr Walhorn started in the ED assembly and gained experience in the DMC assembly in the off-peak season. After completing his community service in lieu of military service, he worked in the UG assembly and later in the UX assembly and played a key role in setting up the UX assembly line.

In 2007, as a foreman, he took responsibility for relocating the UX assembly to Leeden. From 2016 onwards, he drove forward the series launch of the UX 01 before moving to Bramsche in 2018. There, Mr Walhorn now manages Assembly Hall 1 with around 130 employees and is responsible for the UX, UF, ZG and DMC base machines as well as the pre-assembly modules. Mr Walhorn is still very grateful to his colleagues and his cousin Ingo for enabling him to join the company.

His dedication and experience are a great asset to our company – we look forward to continuing our journey into the future together.



report 50 11

Teamwork in the Field

# **UK Trial Showcases Smart Fertiliser Strategy**





As part of international trials for FertiSpot, C.J. Cox Ltd and AMAZONE Ltd partnered with Pearce Seeds to evaluate fertiliser efficiency and yield performance under British soil and climate conditions. The trial tested varying DAP (diammonium phosphate) dosages and compared FertiSpot with traditional band application across eight 900 m² plots.

The field was drilled using the AMAZONE Precea on 5th May 2025 and monitored throughout the growing season. Upon maturity, each plot was harvested and weighed using a feeder wagon equipped with weigh cells to ensure accuracy.

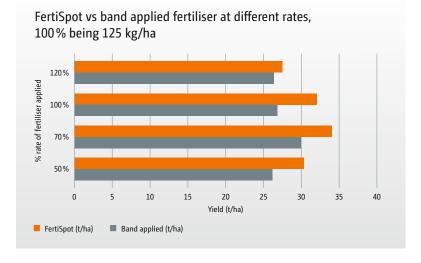




The results were impressive: reducing the fertiliser dose rate by 30% and using AMAZONE FertiSpot, the trial achieved a £45/ha fertiliser saving and a 7.2 t/ha increase in fresh yield. This translated into a total return of £386/ha.

Looking ahead, C.J. Cox plans to repeat the trials across different soil types and seasonal conditions. Will Lunn from Pearce Seeds commented, "The trial was very good and proved we could reduce fertiliser usage without impacting yield – cutting costs and benefiting the environment."

This is particularly relevant in the Poole Harbour catchment area, where eutrophication and algal blooms are ongoing environmental concerns.





AMAZONE representative for Weser-Ems, Hartmut Goudschaal (far right) and Andre Ahrends from Agravis (Emsbüren branch, front row, third from right) present Egbert Wesserlink (Raiffeisen Ems-Vechte, Head of Agriculture) with a model of the ZG-B.

Raiffeisen Ems-Vechte puts its faith in AMAZONE

## 6 in one fell swoop

Together with our sales partner Agravis Technik BvL GmbH in Meppen, we handed over six ZG-B 8200 trailed spreaders to Raiffeisen Ems-Vechte. This enables our long-standing customer to strengthen its service at six branch: Klein Berßen, Lathen, Lähden, Lorup, Ringe and Uelsen.

The handover not only marks another milestone in our successful collaboration, it also stands for a deeply rooted partnership and the high level of commitment of all concerned. We would like to thank Raiffeisen Ems-Vechte for their excellent cooperation and the long history of trust and confidence placed in AMAZONE.

The customer is supported by our experienced and dedicated representative, Hartmut Goudschaal, who took over the area in 1995. With his many years of experience and technical expertise, he is an extremely competent contact person for customers.

We look forward to seeing the six ZG-B 8200s operating successfully and eagerly await the next joint projects.



From left: Marek Zaluska, Marius Barsul, Christian Hoff, Stefan Pöhler, Jonas Wietfeld (production superviser at Landtechnik Bank GmbH), Andreas Hemeyer, Hartmut Voigt, Michael Angermann, Florian Lüer, Roland Kratz, Andreas Petermöller

Modern technology for well-maintained fairways

#### **Handover at Burgdorf Golf Club**

On May 5th 2025, a special handover took place at Burgdorf Golf Club: three machines – a UF mounted sprayer, a ZA-M fertiliser spreader and a Profihopper – were officially handed over to the club for ground-care use. In future, the implements will ensure even better care and maintenance of the extensive golf course.

Representatives of AMAZONE, including Mr Hemeyer, Mr Lüer, Mr Kratz and Mr Petermöller, were present at the handover.

This was a special highlight for Mr Hemeyer, a passionate golfer who learned the sport on this very course.

Burgdorf Golf Club, known for its varied fairways in the middle of idyllic woodland, sends a clear message about sustainable course maintenance and modern technology in golf with this investment.

report 50

From left: Dr Justus Dreyer (Chairman of the Board and owner of the AMAZONE Group), Burkhard Jung (Mayor of Leipzig), Martin Wilken (Plant Manager at BBG), Dr Rainer Resch (Managing Director of the AMAZONE Group).

Expansion creates modern production conditions and new jobs

#### BBG Leipzig celebrates the topping-out ceremony for its new production buildings

On 2 April 2025, BBG Bodenbearbeitungsgeräte Leipzig GmbH & Co. KG, a subsidiary of the AMAZONE Group, celebrated the topping-out ceremony for two new production buildings in Rippachtalstraße. The modern buildings, each with an area of around 4,000 square metres, will be directly connected to the existing Hall 14 and will provide additional capacity for the production of soil tillage implements, crop protection sprayers and hoes.

Visualisation of the new production buildings of BBG Bodenbearbeitungsgeräte in Leipzig. Image copyright: GOLDBECK GmbH

The buildings, which are being constructed by GOLDBECK GmbH as the general contractor, are divided into two aisles, each 25 metres wide, and reach a total height of 10 metres. Spacious outdoor storage areas totalling around 15,000 square metres enable efficient logistics. Completion is scheduled for November 2025.

In addition to new assembly areas, intralogistics and dispatch areas will also be integrated. A central office suite between the buildings provides space for at least ten office workplaces. The expansion of the site will create numerous new jobs and sends a clear signal for growth and employment in Leipzig.

Dr Justus Dreyer, Chairman of the Board of the AMAZONE Group, emphasised the significance of the expansion for the group and for agriculture. Mario Schnieber, GOLDBECK branch manager, praised the rapid and efficient construction of the buildings.

With its new production buildings, BBG Leipzig is focusing on state-of-the-art manufacturing conditions and attractive prospects for qualified employees.

Looking back

## **Bulk materials storage facilities from AMAZONE**

Mineral fertilisers are an important component of modern agriculture – especially when organic nutrients such as slurry or manure are not available in sufficient quantities. However, handling used to be very time-consuming: transporting heavy sacks meant hard manual labour, high costs and a lot of time wasted.

In the 1970s, the operations manager at our plant in Hude developed a pioneering solution: the so-called loose fertiliser chain. At the heart of this idea were specially designed bulk materials storage facilities made of corrosion-resistant wood and stainless steel. They could be filled directly from lorries or wagons via conveyor systems. The stored fertiliser was removed via a tilting flap and loaded directly into the spreaders using a wheeled loader.

The new system brought several advantages: it eliminated the need for laborious sack logistics, cut costs and made handling considerably easier. In addition, the storage facili-

ties could also be used flexibly for other bulk materials such as grain.

Over the years, a specially trained AMAZONE assembly team has built several hundred of these storage facilities, primarily for agricultural cooperatives and large farms in Germany. The bulk material storage facilities exemplify our commitment to combining practical solutions with high efficiency and durability. This creates real added value for agriculture.





With the acquisition of the plant in Leeden in 2007, AMAZONEN-WERKE responded to the strong growth of the company and the limited possibilities for expansion at the existing locations in Gaste and Hude. The former prefabricated house factory of the company Lima, with around 5,000 m² of production space and a spacious office wing, offered ideal conditions for future-oriented use. To begin with, the assembly of the UX crop protection sprayer, the Pantera self-propelled sprayer, the DMC direct seed drill and the ZG-B bulk fertiliser spreader was moved there. Due to increasing production volumes, the site was continuously expanded in the following years – the footprint has more than doubled since then.

A significant milestone followed at the end of 2019: with the arrival of the central spare parts warehouse – the Global Parts Centre – Leeden became the modern logistics hub of AMAZONEN-WERKE. Today, approximately 11,000 m² of indoor space and 9,000 m² of outdoor space is available for around 48,000 different spare parts. In addition to spare parts logistics, customer service, order processing and spare parts planning and scheduling are also based here.

The production of the above-mentioned machines has now been relocated to our plant in Bramsche.

The state-of-the-art, automatic small parts warehouse (ASPW) with approx. 27,500 bins enables efficient, fully automated storage and order picking. It is supplemented by a newly designed narrow-aisle warehouse for around 17,500 skeleton containers. The shipping capacity currently stands at up to 1,000 packages per day — with potential for expansion. Bulky or non-sensitive parts are stored outside in special shelving systems.

The AMAZONE Used Machine Centre (UMC) was also established in Leeden. This enables AMAZONE to provide even more effective support to its trading partners in the used machinery business. The facility, with its adjoining workshop and exhibition area, creates the ideal conditions for comprehensive and effective customer service.

Today, around 100 employees work at the Leeden site under the management of Carolin Wiebusch-Rakonjac. Over the years, the site has developed into a modern and important part of the AMAZONE Group — to the delight of everyone involved in the region and the company.



Workplace in the automatic small parts warehouse (ASPW)

**report 50** 15

